

LAWRENCE LIVERMORE REPORT

A weekly collection of scientific and technological achievements from Lawrence Livermore National Laboratory: Sept. 22-29, 2008.

Laboratory is featured on Flickr



The Laboratory is now represented on Flickr, the photo-sharing Web site run by Yahoo! Everyone at LLNL is encouraged to visit the Lab's channel pages at <http://www.flickr.com/groups/llnl/pool/>, and join the group.

The Lab's Flickr effort is the latest step in LLNL's exploration of Web 2.0 technology, which includes a group channel with video clips related to the Lab on iTunes at:
<http://phobos.apple.com/WebObjects/MZStore.woa/wa/viewPodcast?id=286458989>.

The LLNL group pages on Flickr and iTunes are works in progress, and are being updated on a regular basis.

Livermore images on cover of ISME



A quartet of visually-striking scientific images, submitted by CMELS scientists, have been selected to illustrate the cover for the CY2009 *ISME Journal*. The *ISME Journal* is a relatively new Nature Publishing Group scientific journal focused on microbial ecology.

The cover images show a subregion of a cyanobacterial filament with attached parasitic bacteria. The images stem from GtLfunded research originally published in the May 2008 issue of *Applied and Environmental Microbiology* by Jennifer Pett-Ridge, Peter Weber and colleagues linking microbial phylogeny to metabolic activity at the single cell level using enhanced element labeling - catalyzed reporter deposition fluorescence *in situ* hybridization (EL-FISH) and NanoSIMS.

Shown in the mock-up, the images will appear on all 12 editions of the CY2009 volume of the journal. Submissions for the cover are solicited annually. Of 40 submissions, three were chosen as finalists. The selection of the LLNL submission was based upon a vote of attendees at the 12th International Symposium on Microbial Ecology, held Aug. 17-22, in Cairns, Australia.

CBS Radio features Lab point-of-care testing technology



Brian Baker, a postdoctoral research staff member in Physical Sciences was recently featured in a radio interview on *Science Today* at the University of California.

Science Today is a daily radio feature that showcases scientific research at the University of California and is distributed to, and broadcast by, more than 1,500 affiliate stations on the CBS radio network.

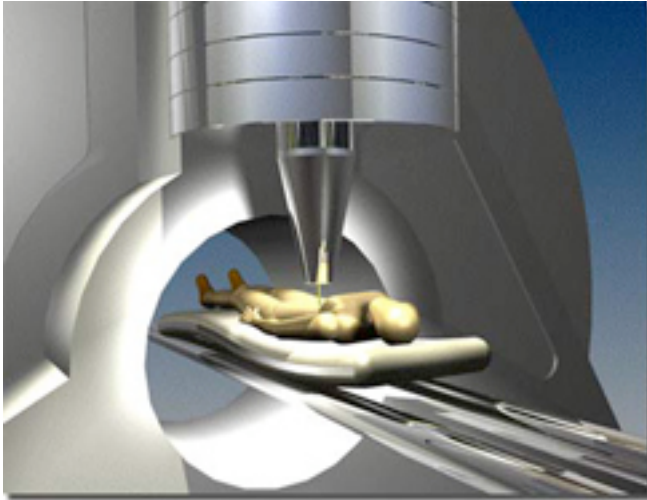
Baker, co-principal investigator of the NIH-funded UC Davis/LLNL Point-of-Care Technologies Center, described the development of rapid point-of-care diagnostics for identification of blood-borne pathogens. The goal of the research project is to design, characterize, validate and deploy devices for the detection of bacterial and fungal infections in whole blood at the point-of-care in less than one hour (vs. days for blood culture).

Detection is achieved through the use of Loop-mediated isothermal AMPlification (LAMP), a nucleic acid amplification technique that rivals Polymerase Chain Reaction (PCR) in speed, sensitivity and specificity.

To listen to the story, go to <http://www.ucop.edu/sciencetoday/article/18596> or <http://www.ucop.edu/sciencetoday/article/18560>

***Medical Physics* takes on proton therapy**

IOP Publishing



Compact proton radiotherapy treatment concept

Lawrence Livermore's first compact proton therapy system – one that would fit in any major cancer center and cost a fifth as much as a full-scale machine is featured in the latest edition of *Medical Physics*.

Proton therapy is considered the most advanced form of radiation therapy available, but size and cost have limited the technology's use to only six cancer centers nationwide. The result of defense-related research, the compact system was developed by scientists at Lawrence Livermore in a project jointly funded by the Laboratory and UC Davis Cancer Center.

Lawrence Livermore has licensed the technology to TomoTherapy Incorporated through an agreement with the Regents of the University of California. TomoTherapy will fund development of the first clinical prototype, which will be tested on patients at UC Davis Cancer Center. If clinical testing is successful, TomoTherapy will bring the machines to market.

To read the article, go to
<http://medicalphysicsweb.org/cws/article/research/35894>

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Newsline provides the latest lab research and operations news.
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Photo of the week



One bug at a time -- Feliza Bourguet who works in the Lab's Global Security, analyzes DNA samples to detect dangerous biological pathogens. The Lab works with the National Nuclear Security Administration to minimize the threat of biowarfare agents.

LLNL is managed by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy's National Nuclear Security Administration.

LLNL applies and advances science and technology to help ensure national security and global stability. Through multi-disciplinary research and development, with particular expertise in high-energy-density physics, laser science, high-performance computing and science/engineering at the nanometer/subpicosecond scale, LLNL innovations improve security, meet energy and environmental needs and strengthen U.S. economic competitiveness. The Laboratory also partners with other research institutions, universities and industry to bring the full weight of the nation's science and technology community to bear on solving problems of national importance.

To send input to the Livermore Lab Report, send e-mail
<mailto:labreport@llnl.gov>.

The Livermore Lab Report archive is available at:
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